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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,866	04/20/2001	Samuel C. Weaver	5564	3291

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EXAMINER	
NGUYEN, SON T	
ART UNIT	PAPER NUMBER
3643	

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/838,866

Applicant(s)

WEAVER, SAMUEL C.

Examiner

Son T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eom et al. (US 5,344,608 on form PTO-1449) in view of Weaver (US 5,573,607 on form PTO-1449).

For claims 1,2,5,9,10, Eom et al. disclose a metal horseshoe having improved vibration damping and stiffness (col. 1, lines 6-11, where Eom discuss their metal being excellent in abrasion resistance, shock absorption and ductile), the horseshoe comprising a molten metal selected from the group consisting of aluminum, magnesium, titanium and mixtures thereof (col. 1, lines 58-61, cols. 2,3,4, all lines). However, Eom et al. are silent about particles of silicon boride composition selected from the group consisting of silicon tetraboride, silicon hexaboride and mixtures thereof, said silicon boride composition being present in a range from about 0.1 to about 80 weight percent in said molten metal. Weaver teaches that light weight metals such as aluminum and magnesium are highly in demand and have been used in a wide variety of industries which employ metal as a material (col. 1, lines 19-25). Since these alloys have some negative drawbacks, Weaver has developed a better metal matrix composites for these industries to employ. Weaver's matrix is formed from a molten metal consisting of

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aluminum, magnesium, titanium, and mixtures thereof and particles of silicon boride consisting of silicon tetraboride, silicon hexaboride and mixtures thereof, the silicon boride being present in a range from about 0.1 to about 80 weight percent in the molten metal (see claim 1 of Weaver). Weaver's matrix is very manageable, can be easily re-melted and yet maintaining its strength and hardness. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ silicon boride and/or its variations, such as silicon hexaboride, and being present in a range from about 0.1 to about 80 weight percent as taught by Weaver in the metal horseshoe of Eom et al. in order to obtain a stronger metal horseshoe (col. 1, lines 8-14 of Weaver). Note, since Eom et al. already have Al, Mg, etc. in their horseshoe, the examiner is relying on silicon boride composition teaching of Weaver and not the Al, Mg, etc. of Weaver.

For claims 3,11, Weaver further discloses that the silicon hexaboride having an average particle size of about 0.1 to about 200 micrometers (col. 2, lines 38-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate about 0.1 to about 200 micrometers of the silicon hexaboride as taught by Weaver in the metal matrix of Eom et al. as modified by Weaver, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art. In re Aller, 105 USPQ 233.

For claims 4,12, Weaver further discloses the silicon hexaboride having an average particle size of about 20 micrometers (col. 2, lines 38-40). It would have been

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obvious to one having ordinary skill in the art at the time the invention was made to incorporate about 20 micrometers of the silicon hexaboride as taught by Weaver in the metal matrix of Eom et al. as modified by Weaver, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art. In re Aller, 105 USPQ 233.

For claim 6, both Eom et al. and Weaver teach the metal being aluminum.

For claims 7,13, Eom et al. as modified by Weaver are silent about the silicon boride being present in a range from about 10 to about 45 weight %. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate about 10 to about 45 weight % of the silicon boride in the metal matrix of Eom et al. as modified by Weaver, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art. In re Aller, 105 USPQ 233.

For claims 8,14, Eom et al. as modified by Weaver are silent about the silicon hexaboride being present in a range from about 10 to about 45 weight %. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate about 10 to about 45 weight % of the silicon hexaboride in the metal matrix of Eom et al. as modified by Weaver, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or

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workable ranges until the desired effect is achieved involves only routine skill in the art.

In re Aller, 105 USPQ 233.

For claims 15,16, see the above paragraphs.

Response to Arguments

3. Applicant's arguments filed 8/22/03 have been fully considered but they are not persuasive. To summarize main points of argument, applicant argued regarding a long-felt need/need for improved horseshoe, metal matrix composites are not metal alloys, Eom in view of Weaver, and the declaration of Samuel C. Weaver.

In order to address a long-felt need, applicant must state that the claimed subject matter solved a problem that was long standing in the art. However, applicant has not proven so because there is no showing that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. See MPEP § 716.04.

From the rejection above, the examiner is not trying to replace the metal of Eom with the metal composite as taught by Weaver. The examiner is merely relying on Weaver's teaching of silicon boride composition to make a metal material stronger; therefore, since Eom et al. teach a metal material to be used in horseshoe, the metal material of Eom include the group consisting of Al, Si, Fe, Cu, Mn, Mg, Cr, Zn, etc., but the metal material does not include silicon boride composition to make it stronger, which Weaver teaches in a metal matrix composites for use in a variety of industries relating to

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usage of metal, it would have been obvious to one of ordinary skill in the art studying these two references would add the silicon boride teaching of Weaver in the metal material of Eom et al. in order to obtain a stronger horseshoe. Eom et al. teach a horseshoe that has stiffness and vibration damping (see col. 1, lines 7-10, 64-68 and col. 2, lines 1-6, "abrasion resistance" would be for stiffness because if not stiff, abrasion would occur; "shock absorption" is same as vibration damping). The combination of Eom and Weaver teach a metal matrix composite horseshoe since applicant claimed such metal matrix composite horseshoe being comprised of molten metal from aluminum, magnesium, etc., which Eom et al. teach, and silicon boride composition, which Weaver teaches.

The declaration of Samuel C. Weaver has been acknowledge by the examiner. However, the declaration is not persuasive. It is greatly appreciated that Mr. Weaver explained the metal properties and differences between each types; however, as mentioned in the above, it is the silicon boride composition that the examiner is relying on from Weaver to make a metal material stronger such as the metal material used in the horseshoe of Eom et al. The examiner is not replacing the already taught aluminum, magnesium, etc. in Eom et al. with the whole metal matrix composite of Weaver. In addition, Eom et al. stress an interest in abrasion resistance and shock absorption, which are basically the same as vibration damping and stiffness because if the horseshoe is not stiff, then it will abrade easily. Furthermore, nothing in the declaration provides evidence that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if persons skilled

in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. The declaration appears to be addressing the same point(s) as that provided by applicant's representative and not really discuss the problem long standing in the art. By stating that the references are old does not constitute long standing in the art because contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son T. Nguyen whose telephone number is (703) 305-

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0765. The examiner can normally be reached on Monday - Friday from 9:00 a.m. to 5:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon, can be reached at (703) 308-2574. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (703) 872-9325. The official fax number is 703-872-9306.



Son T. Nguyen
Primary Examiner, GAU 3643
November 18, 2003